

## ABSTRACT

An ultra-wide band (UWB) waveform receiver with noise cancellation for use in a UWB digital communication system. The UWB receiver uses a two-stage mixing approach to cancel noise and bias in the receiver. Self-jamming is prevented by inverting a portion of the received signal in the first mixer and then coherently detecting the partially and  
5 synchronously inverted signal in the second mixer. Since the drive signals on both mixers are not matched to the desired signal, leakage of either drive signal does not jam the desired signal preventing the receiver from detecting and decoding a weak signal.

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